



# Open Access in the United States

## Citation

Peter Suber, Open Access in the United States, in Open Access: Key Strategic, Technical and Economic Aspects (ed. Neil Jacobs, 2006).

## Permanent link

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This is a chapter in Neil Jacobs (ed.), *Open Access: Key Strategic, Technical and Economic Aspects*, Chandos Publishing, 2006.

## **Open Access in the United States**

by Peter Suber

The United States has a rich history of open-access (OA) initiatives. In 1969 Americans built ARPANET, the direct ancestor to the internet, for the purpose of sharing research without access barriers. In 1966, before ARPANET and well before the internet and web, Americans launched the Education Resources Information Center (ERIC) and MEDLINE, probably the first OA projects anywhere. ERIC and MEDLINE are still online and going strong, ERIC hosted by the U.S. Department of Education, and MEDLINE by the U.S. National Library of Medicine in the Department of Health and Human Services.<sup>1</sup>

To fit the large story of OA in the United States into my allotted space, I've decided to focus on the ten most important current OA initiatives. This means omitting important historical initiatives that are no longer current, such as David Shulenburg's National Electronic Article Repository (NEAR), Harold Varmus' E-BioMed (although this survives in the form of PubMed Central, discussed below), and Martin Sabo's Public Access to Science Act.<sup>2</sup> It also means omitting many important current initiatives, such as ERIC and MEDLINE, the Astrophysics Data System (ADS), the Bethesda Statement on Open Access Publishing, Google, Highwire Press, the Information Access Alliance (IAA), Lots of Copies Keeps Stuff Safe (LOCKSS), the National Academies Press (NAP), the National Science Digital Library (NSDL), the Networked Computer Science

Technical Reference Library (NCSTRL), the Networked Digital Library of Theses and Dissertations (NDLTD), Ockham, the Open Archives Initiative (OAI), OAIster, Perseus, Project Gutenberg, Wikipedia, the U.S. contributions to the international genome project and HapMap, and the many OA projects from the Library of Congress, the National Science Foundation, and branches of government beyond the Department of Health and Human Services.<sup>3</sup> Finally, it means I must apologize to the omitted and take responsibility for some necessary, regrettable, and ultimately subjective line-drawing.

Here are the 10 initiatives are in roughly chronological order.

1. Paul Ginsparg launched arXiv in August 1991,<sup>4</sup> originally hosted by the Los Alamos National Laboratory and limited to high energy physics. It now resides at Cornell University and has expanded its scope to nearly every branch of physics as well as mathematics, computer science, quantitative biology, and nonlinear sciences.

ArXiv is the oldest OA eprint archive still in operation, and also one of the largest and most heavily used. It has earned a central place in physics research worldwide. As a result of arXiv, a larger percentage of physicists deposit their work in OA archives, and search OA archives for the work of others, than researchers in any other field. In some branches of physics the self-archiving rate approaches 100%. While that's important for sharing knowledge and accelerating research in physics, it's also a valuable "proof of concept" for other disciplines. ArXiv demonstrates that archiving technology can scale up to a whole discipline, that a disciplinary culture can adapt to (indeed, enthusiastically adopt) OA archiving, that OA archiving needn't be delayed in order to answer

skeptical doubts (but can answer these doubts as it goes), and that high-volume OA archiving needn't undermine subscription journals.<sup>5</sup> Indeed, we are left to wonder how far the success of arXiv is transferable to other disciplines.<sup>6</sup>

2. Brewster Kahle launched the Internet Archive (IA) in June 1996. From the start, IA provided OA to its mirror of the historical internet as well as to many special collections. IA sponsors the OA Text Archive, Ourmedia, and the new Open Education Resources project, and co-sponsors the OA Million Book Project with Carnegie Mellon University.<sup>7</sup>

One of its most important OA projects is the Open Content Alliance (OCA), launched in October 2005. The OCA is a non-profit coalition of for-profit and non-profit organizations, led by IA, dedicated to digitizing print books for OA. Unlike the Google Library project, the OCA will limit itself to public-domain books and copyrighted books for which the copyright holder has consented to participate. Also unlike Google, the OCA will offer full OA whenever it has permission to do so, while Google disables printing and downloading in the user's browser even for public-domain books. Among the other members of the OCA are Yahoo, Microsoft, the Research Libraries Group, the European Archive, National Archives of the UK, and 19 major research universities.<sup>8</sup>

Finally, the IA has agreed to host a (forthcoming) universal OA repository that would mirror and preserve all the other, willing repositories in the world, and accept deposits from scholars who don't have repositories in their institutions or fields.<sup>9</sup>

3. The Public Library of Science (PLOS) was launched by a letter to the editor in *Science Magazine* for March 23, 2001, quickly followed by an open

letter, eventually gathering over 30,000 signatures, calling on science journals to provide OA to their full contents by September 1, 2001, or the signatories would submit their work elsewhere. The deadline came and went without any significant publisher concessions and without any significant action by the signatories. The PLoS founders —Stanford biologist Patrick Brown, Berkeley biologist Michael Eisen, and Nobel laureate and former NIH Director Harold Varmus— decided that if existing publishers would not convert existing journals to OA, then they would have to become publishers themselves. PLoS launched its first journal, *PLoS Biology*, in October 2003, and its second, *PLoS Medicine*, in October 2005. PLoS currently publishes six OA journals and plans to add more. In 2005 *PLoS Biology* earned an impact factor of 13.9, the highest ranking in the category of general biology.<sup>10</sup>

4. There are over a dozen open-source software packages for creating open-access, OAI-compliant repositories. One of the two leaders, DSpace, is American. DSpace was developed by MIT and Hewlett-Packard, launched in November 2002, and is now used in over 100 OA repositories worldwide.<sup>11</sup>

MIT has other important OA initiatives, most notably OpenCourseWare, a pioneering program of OA courses now emulated by a growing number of other institutions around the world. MIT also sponsors the CWSpace (archiving open courseware files in DSpace), Open Knowledge Initiative (specs for open components of learning software), SIMILE (Semantic Interoperability of Metadata and Information in unLike Environments), and TEK (a bridge over the digital divide that distributes search engine results by email).<sup>12</sup>

Another of the other major open-source packages for OA repositories is Fedora (Flexible Extensible Digital Object and Repository Architecture), developed by Cornell University and the University of Virginia and now used in about 30 repositories. Cornell has also collaborated with Pennsylvania State University on DPubS, an open-source journal management package, and the University of Virginia is host to a major OA Electronic Text Center.<sup>13</sup>

5. Until Lawrence Lessig launched Creative Commons<sup>14</sup> on May 16, 2002, most OA initiatives gave no thought to OA-appropriate licenses. The Budapest Open Access Initiative (BOAI)<sup>15</sup>, for example, said that “the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.” But there were no licenses at the time allowing copyright holders to retain these rights and waive the rest. Most OA providers simply put work online with no license at all, leaving unclear which uses were permitted and which were not, and leaving users to choose between the delay of seeking permission and the risk of proceeding without it. CC licenses solved this problem elegantly and were quickly adopted by OA-inclined authors (including scholarly authors), musicians, film-makers, and photographers. When PLoS and BioMed Central adopted CC licenses for their journals, many OA journals followed suit. Both Google and Yahoo now support filters that pick out content using CC machine-readable licenses.<sup>16</sup>

CC licenses aren’t the only licenses to break with the “all rights reserved” default,<sup>17</sup> but outside the special domain open-source software they are by far the most widely used. Today over 50 million online objects carry CC licenses.

OA literature doesn't strictly need licenses, which explains why many OA pages still don't use any. But licenses can inform users that OA literature is really OA, assure users that permitted uses are really permitted, and help authors enforce any exceptions.

CC launched Science Commons<sup>18</sup> in early 2005. Under the leadership of John Wilbanks, Science Commons now has projects in OA publishing and archiving, OA data and databases, and licenses optimized for scientific content.

6. A large number of U.S. universities have adopted OA-friendly policies or resolutions.<sup>19</sup> These include Carleton College, Case Western Reserve University, Columbia University, Cornell University, Duke University, Gustavus Adolphus College, Harvard University, Indiana University at Bloomington, Indiana University - Purdue University at Indianapolis, Macalaster College, Massachusetts Institute of Technology, North Carolina State University, Oregon State University, St. Olaf College, Stanford University, University of California at Berkeley, University of California at San Francisco, University of California at Santa Cruz, University of Connecticut, University of Kansas, University of Maryland, University of North Carolina at Chapel Hill, and the University of Wisconsin.

Some of these university actions are policies to promote OA; some are resolutions by the Faculty Senate urging the adoption of such policies; and some are decisions to cancel expensive journals by the hundreds, accompanied by public statements on the unsustainability of the current subscription model and the need to explore alternatives.

Only five universities in the world today —none in the U.S.— mandate OA to research articles published by faculty. (They are in Australia, Portugal, the UK, and two in Switzerland.) Of the 18 universities with OA archiving policies sufficiently strong to sign the Eprints Institutional Self-Archiving Policy Registry,<sup>20</sup> only two are from the U.S. (Case Western Reserve and the University of Kansas). While the U.S. may lead in the number of universities taking active steps toward OA, it doesn't lead in the percentage of universities doing so.

7. The two most widely read discussion forums devoted to OA issues are U.S.-based: The *American Scientist* Open Access Forum, launched in August 1998 (American-hosted but moderated by Canadian Stevan Harnad) and the SPARC Open Access Forum (SOAF), launched in July 2003 (moderated by myself). The AmSci Forum focuses on OA archiving and related issues like government OA policy, the effect of OA on citation impact, and strategies for spreading author self-archiving. SOAF deals with all OA issues, broadly construed. Several other U.S.-based discussion lists often have OA-related threads: LibLicense from Yale University, OAI-Eprints from the Open Archives Initiative, ScholComm (for Scholarly Communication) from the American Library Association, SPARC-IR (on institutional repositories) and SPARC OpenData from SPARC, and SSP-L from the Society for Scholarly Publishing.<sup>21</sup>

8. The U.S. is fortunate to have several effective OA advocacy organizations: the Alliance for Taxpayer Access (ATA), Open Access Working Group (OAWG), Public Knowledge (PK), and the Scholarly Publishing and Academic Resources Coalition (SPARC).<sup>22</sup>



SPARC is a coalition of more than 200 research institutions founded by Rick Johnson in 1998 and currently headed by Heather Joseph. Its early focus was on introducing competition into the journal marketplace and making journals more affordable. But since the Budapest Open Access Initiative in February 2002 (in which SPARC participated), it has worked actively for OA. SPARC has spearheaded a number of education and advocacy campaigns, including Create Change (grassroots advocacy tips for faculty and librarians), a Publisher Assistance Program (planning assistance for OA publishing), and an extensive Publisher Partner Program (supporting free and affordable journals). It has created an Authors Addendum (a contract supplement to help authors retain rights to their work), a directory of Open Access Programs (resources for librarians and administrators to help promote OA among faculty), an OA Sponsorship guide (helping OA journals find sponsors), and a guide to Open Access Business Planning. To support these programs, it formed the SPARC Consulting Group, which provides business, financial, and strategic consulting services to universities, learned societies, and publishers. SPARC promotes community understanding of key issues through discussion forums on OA, Open Data, and Institutional Repositories, and by publishing the SPARC Open Access Newsletter (which I write). It also has a European arm called SPARC Europe, headed by David Prosser. Less visible to the public, SPARC has been an invaluable convenor and coalition-builder. It not only helped to form the ATA and OAWG, but continues to lead them as well.

Public Knowledge was founded in 2001 to speak for the public interest in information policy. Its primary policy interests under president and co-founder

Gigi Sohn have been to protect the public domain, fair-use rights, and technological innovation, and to promote OA. PK's OA project was launched in 2003 and works on all aspects of OA, both OA archives and journals, inside the U.S. and internationally, but especially on the OA policies of the federal government.<sup>23</sup>

While SPARC and PK were active in promoting OA before Congress asked the NIH to develop an OA policy in mid-2004, the OAWG and ATA sprang into existence in order to support OA policy in the federal government. The OAWG consists of the American Association of Law Libraries (AALL), the American Library Association (ALA), the Association of Academic Health Sciences Libraries (AAHSL), the Association of College & Research Libraries (ACRL), the Association of Research Libraries (ARL), the Medical Library Association (MLA), Public Knowledge (PK), Public Library of Science (PLOS), and SPARC. The ATA is a coalition of US-based non-profit organizations working for OA to publicly-funded research. Among its dozens of members are universities, libraries, and patient- and disease-advocacy organizations.

OAWG, PK, and SPARC have funding from the Open Society Institute.<sup>24</sup>

One lesson from the U.S. for other countries is that governments that consider mandating OA to publicly-funded research will be lobbied intensively by publishers and will need well-organized, well-informed, and broad-based OA advocacy organizations to answer publisher objections and educate policy-makers about OA.

9. The largest and most visible U.S. initiative is the public-access policy of the National Institutes of Health (NIH), which asks NIH grantees to deposit

copies of any full-text, peer-reviewed articles resulting from NIH-funded research in PubMed Central (PMC), the OA repository maintained by the NIH.<sup>25</sup>

In July 2004, Congress instructed the NIH to develop a policy requiring OA to the results of NIH-funded research and require it to be available online within six months of its publication in peer-reviewed journals. The final version of the policy fell short of the Congressional directive, substituting a request for the requirement and extending the permissible delay to 12 months after publication. The first weakness aggravated the second. Because there's no deposit requirement, the 12 month figure is just another request, not a firm deadline. The policy "strongly encourages" grantees to deposit their work in PMC "as soon as possible" after publication, but this is just an exhortation without sanction. OA proponents criticized the weakness of the new policy, while OA opponents criticized its remaining strength.<sup>26</sup>

I was among the critics of its weakness, and remain one, but a policy can fall short of high expectations and still be a major step forward. The NIH was the first research funding agency, public or private, to encourage OA archiving for the research it funds.<sup>27</sup> It was a good agency to go first: it funds medical research, which directly serves an urgent public need, and it's very large. In fact, the NIH is the world's largest funder of medical research, and its 2005 budget, at \$28 billion, was larger than the gross domestic product of 142 nations.<sup>28</sup> The NIH policy simply applies to more literature than any other single initiative is ever likely to cover —about 5,500 peer reviewed journal articles *per month*. It rightly focuses on OA archiving rather than OA journals. It allows grantees use grant funds to pay the processing fees charged by OA journals. And it completely

avoids the pitfalls of the June 2003 Sabo bill, which would have put publicly-funded research into the public domain without actually providing OA. The NIH approach, by contrast, provides OA to publicly-funded research without putting any into the public domain.

Finally, as Elias Zerhouni, Director of the NIH, told the *Washington Fax* in January 2005, “[t]he fundamental breakthrough of this policy is...the fact that we’re creating for the first time the precedent and the right for a federal agency to have a venue or pathway for its scientists to...give access to the public.”<sup>29</sup>

Because the policy doesn’t require compliance, the compliance rate has been very low.<sup>30</sup> Because it allows embargoes of up to 12 months, most journals with a policy on NIH-funded authors require 12-month embargoes.<sup>31</sup> However, there are three reasons to think that the NIH will soon strengthen the policy in both of the critical respects in which it fell short of the intent of Congress.

The first is that the agency’s own Public Access Working Group (PAWG), appointed to advise it on implementing and improving the policy, recommended in November 2005 that the request become a requirement and the NIH impose a firm six-month deadline on public access. PAWG is advisory but its advice will carry weight with the NIH and Congress.<sup>32</sup>

The second and third reasons are two bills now pending before Congress: the CURES Act, which would be even better than the PAWG recommendation, and the Federal Research Public Access Act of 2005, which would be even better than the CURES Act. For details, see the next section.

Before leaving this section, we should note the NIH’s other notable OA initiatives. The chief among them is PubMed Central (PMC), the OAI-compliant

repository where the NIH asks its grantees to deposit their work. PMC and arXiv are the largest and most-used OA repositories in the world. The NIH also hosts important OA databases like ChemBank, ClinicalTrials, GenBank, Gene, GenStat, HomoloGene, Nucleotide, Protein, PubChem, and Taxonomy. An important aspect of the NIH public-access policy is that the NIH enhances the author manuscripts it receives by linking them with these OA databases.<sup>33</sup>

10. Congress is currently considering two separate bills that would mandate OA to different bodies of publicly-funded research. Both would subsume the NIH.

The American Center for Cures Act (called the CURES Act) was introduced in the U.S. Senate by Senator Joseph Lieberman on December 14, 2005. It would create a new agency within the NIH, the American Center for Cures, whose primary mission would be to translate fundamental research into therapies. In addition to creating and regulating the new Center, the bill contains a notable provision on public access. The act would mandate OA to NIH-funded research within six months of publication, and extend the same policy to all medical research funded by the larger Department of Health and Human Services, which embraces the NIH as well as the Centers for Disease Control and Prevention and the Agency for Healthcare Research. Over half of the non-classified research funded by the federal government is funded by the Department of Health and Human Services.<sup>34</sup>

The CURES Act would also fix a subtle but serious problem with the current NIH policy. The entire Department of Health and Human Services has a license to disseminate the results of HHS-funded research. When drafting its

public-access policy, the NIH acknowledged the existence of the license but chose to rely instead on publisher consent, which had the effect of accommodating publisher resistance. The CURES Act would rely on the pre-existing license and make publisher consent irrelevant.

The Federal Research Public Access Act (FRPPA) was introduced in the Senate on by Senator John Cornyn in May 2006. It would mandate OA to nearly all federally-funded research within six months of publication. It would also rely on the government license rather than publisher consent. The FRPAA Act directs all major federal agencies that fund research to adopt OA policies within a year and lays down strong guidelines for those policies. For this purpose, an agency is major if its research budget is \$100 million/year or more. Ten agencies fall into this category: the Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), National Science Foundation (NSF), and the cabinet-level Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, and Transportation.<sup>35</sup>

Both the CURES Act and FRPPA Act have bipartisan support in Congress, but as we go to press it's too early to assess their chances. If the PAWG recommendation is adopted, or if either one of these bills is passed, then the world's largest funder of medical research will have one of the world's strongest OA policies.

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I'm glad to celebrate the U.S. contribution to OA. But science and scholarship are international, and OA initiatives worldwide are unusually

collaborative. National boundaries matter much less than disciplinary differences, and OA activists in different countries are much more allies than rivals. If one country has an OA success, OA proponents in other countries will want to spread the success as quickly as possible; if one country suffers an OA setback, OA proponents elsewhere will want to see it overcome. If OA activists feel urgency, it's not the urgency of competition but the urgency to implement this beautiful solution to the serious problem of costly and limited access to research. We're all conscious that OA to one country's literature benefits researchers worldwide and setbacks to OA in one country are setbacks to researchers worldwide.<sup>36</sup>

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<sup>1</sup> ARPANET (doesn't have a home page)  
<http://en.wikipedia.org/wiki/ARPANET>

Education Resources Information Center (ERIC)  
<http://www.eric.ed.gov/>

MEDLINE  
[http://www.nlm.nih.gov/databases/databases\\_medline.html](http://www.nlm.nih.gov/databases/databases_medline.html)

National Library of Medicine  
<http://www.nlm.nih.gov/>

For other early OA initiatives, inside and outside the U.S., see Peter Suber, Timeline of the Open Access Movement  
<http://www.earlham.edu/~peters/fos/timeline.htm>

<sup>2</sup> National Electronic Article Repository (NEAR) (never had a home page)  
<http://www.arl.org/newsltr/202/shulenburg.html>

E-BioMed (no longer has a home page)  
<http://www.nih.gov/about/director/pubmedcentral/ebiomedarch.htm>

Public Access To Science Act ("the Sabo bill")  
<http://thomas.loc.gov/cgi-bin/query/z?c108:H.R.2613>:

<sup>3</sup> Astrophysics Data System (ADS)  
<http://ads.harvard.edu>

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Bethesda Statement on Open Access Publishing  
<http://www.earlham.edu/~peters/fos/bethesda.htm>

Google  
<http://www.google.com/>

HapMap Project  
<http://www.hapmap.org/>

Highwire Press  
<http://highwire.stanford.edu/>

Human Genome Project  
[http://www.ornl.gov/sci/techresources/Human\\_Genome/home.shtml](http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml)

Information Access Alliance (IAA)  
<http://www.informationaccess.org/>

Library of Congress  
<http://www.loc.gov/>

Lots of Copies Keeps Stuff Safe (LOCKSS)  
<http://lockss.stanford.edu/>

National Academies Press (NAP)  
<http://www.nap.edu/>

National Science Digital Library (NSDL)  
<http://nsdl.org/>

National Science Foundation (NSF)  
<http://www.nsf.gov/>

Networked Computer Science Technical Reference Library (NCSTRL)  
<http://www.ncstrl.org/>

Networked Digital Library of Theses and Dissertations (NDLTD)  
<http://www.ndltd.org/>

Ockham  
<http://www.ockham.org/>

Open Archives Initiative  
<http://www.openarchives.org/>

OAister  
<http://oaister.umdl.umich.edu/o/oaister/>

Perseus  
<http://www.perseus.tufts.edu/>

Project Gutenberg  
<http://www.gutenberg.net/>



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Wikipedia

[http://en.wikipedia.org/wiki/Main\\_Page](http://en.wikipedia.org/wiki/Main_Page)

<sup>4</sup> arXiv

<http://arxiv.org/>

<sup>5</sup> Key Perspectives reported in May 2005 that the American Physical Society (APS) and the Institute of Physics Publishing Ltd (IOPP) were unable to identify any subscriptions lost in the 14 years of arXiv's existence.

<http://eprints.ecs.soton.ac.uk/11006/>

The APS and IOPP both support OA archiving by accepting submissions directly from arXiv, which encourages authors to deposit their preprints there. In 1999, the APS went so far as to help launch an arXiv mirror at the Brookhaven National Laboratory and the IOPP is the process of launching an arXiv mirror of its own.

<sup>6</sup> We don't know the answer. See my list of the "Disciplinary differences relevant to open access."

<http://www.earlham.edu/~peters/fos/lists.htm#disciplines>

<sup>7</sup> Ourmedia

<http://ourmedia.org/>

Open-Access Text Archive

<http://www.archive.org/details/texts>

Open Educational Resources

<http://www.archive.org/details/education>

Million Book Project

<http://www.archive.org/details/millionbooks>

Internet Archive

<http://www.archive.org/>

<sup>8</sup> Open Content Alliance

<http://www.opencontentalliance.org/>

Open Library (collection of OCA-scanned books)

<http://www.openlibrary.org/>

Peter Suber, "The Open Content Alliance," *SPARC Open Access Newsletter*, November 2, 2005.

<http://www.earlham.edu/~peters/fos/newsletter/11-02-05.htm#oca>

<sup>9</sup> Disclosure: I'm working with the IA on this project. See Peter Suber, "Getting to 100%," *SPARC Open Access Newsletter*, April 2, 2005.

<http://www.earlham.edu/~peters/fos/newsletter/04-02-05.htm#oara>

<sup>10</sup> Public Library of Science (PLOS)

<http://www.plos.org/index.html>

PLOS open letter (archived copy, no longer accepting signatures)

<http://www.plos.org/about/letter.html>

PLOS Biology

<http://biology.plosjournals.org/>

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PLoS Medicine

<http://medicine.plosjournals.org/>

The first impact factor for PLoS Biology (PLoS press release, June 23, 2005)

<https://mx2.arl.org/Lists/SPARC-OAForum/Message/2031.html>

<sup>11</sup> DSpace (the software)

<http://libraries.mit.edu/dspace-mit/>

DSpace Federation

<http://www.dspace.org/>

The leading archiving software by installations is Eprints from the University of Southampton (UK), launched in September 2000.

<http://www.eprints.org/>

<sup>12</sup> CWSpace

<http://cwspace.mit.edu/>

OpenCourseWare (over 1,250 courses online as of December 2005)

<http://ocw.mit.edu/>

Open Knowledge Initiative

<http://www.okipproject.org/>

SIMILE (Semantic Interoperability of Metadata and Information in unLike Environments)

<http://simile.mit.edu/>

TEK (Time Equals Knowledge)

<http://tek.sourceforge.net/>

<sup>13</sup> Fedora

<http://www.fedora.info/>

DPubS

<http://dpubs.org/>

Electronic Text Center

<http://etext.virginia.edu/>

<sup>14</sup> Creative Commons

<http://creativecommons.org/>

<sup>15</sup> Budapest Open Access Initiative (BOAI)

<http://www.soros.org/openaccess/>

<sup>16</sup> For PLoS, see note 10 above.

BioMed Central

<http://www.biomedcentral.com/>

Google. To limit Google searches to CC-licensed content, use the “Usage Rights” menu options on the Advanced Search page.

[http://www.google.com/advanced\\_search](http://www.google.com/advanced_search)

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Yahoo has both a dedicated search engine CC content and an advanced option for CC filtering on its regular search engine.

<http://search.yahoo.com/cc>

<http://search.yahoo.com/search/options?fr=fp-top&p=>

<sup>17</sup> Lawrence Liang, A Guide To Open Content Licenses

[http://pzwart.wdka.hro.nl/mdr/research/liang/open\\_content\\_guide](http://pzwart.wdka.hro.nl/mdr/research/liang/open_content_guide)

<sup>18</sup> Science Commons

<http://science.creativecommons.org/>

Disclosure: I'm a member of the Science Commons Publishing Working Group.

<http://science.creativecommons.org/literature/litwg>

<sup>19</sup> See Peter Suber, University actions for open access or against high journal prices

<http://www.earlham.edu/~peters/fos/lists.htm#actions>

<sup>20</sup> Eprints Institutional Self-Archiving Policy Registry

<http://www.eprints.org/openaccess/policysignup/>

<sup>21</sup> American Scientist Open Access Forum

<http://american-scientist-open-access-forum.amsci.org/archives/American-Scientist-Open-Access-Forum.html>

SPARC Open Access Forum

<http://www.arl.org/sparc/soa/index.html#forum>

LibLicense

<http://www.library.yale.edu/~llicense/index.shtml>

OAI-Eprints

<http://lists.openlib.org/mailman/listinfo/oai-eprints>

ScholComm

<http://lp-web.ala.org:8000/>

SPARC-IR

<https://mx2.arl.org/Lists/SPARC-IR/List.html>

SPARC OpenData

<http://www.arl.org/sparc/opendata/index.html>

SSP-L

<http://www.sspnet.org/i4a/pages/index.cfm?pageid=3625>

<sup>22</sup> Alliance for Taxpayer Access (ATA) (founded August 2004)

<http://www.taxpayeraccess.org>

Open Access Working Group (OAWG) (founded October 2003)

<http://www.arl.org/sparc/oa/oawg.html>

Public Knowledge (PK) (founded in September 2001, open access project launched July 2003)

<http://www.publicknowledge.org/>

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Scholarly Publishing and Academic Resources Coalition (SPARC) (founded June 1998)  
<http://www.arl.org/sparc/>

<sup>23</sup> Disclosure: I direct PK's Open Access Project.

<sup>24</sup> Open Society Institute  
<http://www.soros.org/initiatives/information>

<sup>25</sup> National Institutes of Health (NIH)  
<http://www.nih.gov/>

NIH Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research  
<http://publicaccess.nih.gov/>

PubMed Central  
<http://www.pubmedcentral.gov/>

<sup>26</sup> Peter Suber, "Comments on the weakening of the NIH public-access policy," *SPARC Open Access Newsletter*, February 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/02-02-05.htm#nih>

Peter Suber, "The final version of the NIH public-access policy," *SPARC Open Access Newsletter*, March 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/03-02-05.htm#nih>

Peter Suber, "NIH Public-Access Policy: Frequently Asked Questions." This includes the procedural history of the policy and answers to common questions and publisher objections.  
<http://www.earlham.edu/~peters/fos/nihfaq.htm>

<sup>27</sup> The first funding agency to let grantees use grant funds to pay processing fees at OA journals charging fees was the U.S.-based Howard Hughes Medical Institute.  
<http://www.hhmi.org/>

<sup>28</sup> Source for claim that NIH budget is larger than the GDP of 142 nations: "Total GDP 2004," World Bank, July 15, 2005.  
<http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP.pdf>

<sup>29</sup> Source of Elias Zerhouni quotation: Janet Coleman, "NIH Public Access Policy Gives Authors Posting Discretion Up To 12 Months," *Washington Fax*, January 21, 2005. (Not online.)

<sup>30</sup> If 100% of NIH grantees complied with the public-access request, then they would submit about 5,500 peer-reviewed manuscripts to the agency every month. The actual submissions are much lower: May 2005, 401; June, 386; July, 553; August, 268; September, 270. See Peter Suber, "Strengthening the NIH policy," *SPARC Open Access Newsletter*, December 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/12-02-05.htm#nih>

<sup>31</sup> Peter Suber, "Publisher policies on NIH-funded authors," *SPARC Open Access Newsletter*, June 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/06-02-05.htm#nih>

Peter Suber, "Update on publisher policies on NIH-funded authors," *SPARC Open Access Newsletter*, July 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/07-02-05.htm#nih>

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<sup>32</sup> See Peter Suber, "Strengthening the NIH policy," note 30 above. PAWG includes journal publishers and editors as well as researchers, librarians, and representatives of patient-advocacy groups and other medical non-profits. See the PAWG roster, [http://www.nlm.nih.gov/od/bor/workgroup\\_roster.html](http://www.nlm.nih.gov/od/bor/workgroup_roster.html)

<sup>33</sup> Peter Suber, "First fruits of the NIH public-access policy," *SPARC Open Access Newsletter*, August 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/08-02-05.htm>

Peter Suber, "Update on first fruits of NIH policy," *SPARC Open Access Newsletter*, September 2, 2005.  
<http://www.earlham.edu/~peters/fos/newsletter/09-02-05.htm>

<sup>34</sup> Peter Suber, "The U.S. CURES Act would mandate OA," *SPARC Open Access Newsletter*, January 2, 2006.  
<http://www.earlham.edu/~peters/fos/newsletter/01-02-06.htm#cures>

<sup>35</sup> The FRPPA Act was not online at the time this article went to press.

<sup>36</sup> See Peter Suber, "OA is not just a technical question about how to finance journals or launch repositories, *Libre Accès à l'information scientifique & technique* (from INIST-CNRS), April 20, 2005. "I don't think there's any national or regional competition for the lead on OA. But if there is, it's a strange kind...in which the leaders want to reduce rather than enlarge the distance between themselves and everyone else."  
[http://www.inist.fr/openaccess/article.php3?id\\_article=80](http://www.inist.fr/openaccess/article.php3?id_article=80)